LISTING OF CLAIMS

1. (Currently amended) A method of identifying a tagged item comprising:

recovering a nucleic acid containing taggant sample from an item, wherein the taggant sample potentially contains one or more target nucleic acids;

~~providing a detection unit comprising one or more sets of electrically separated electrical conductor pairs, each conductor having an attached capture probe such that a gap exists between the capture probes of a pair of electrically separated conductors, wherein the capture probes for each pair of separated electrical conductors are complementary to one of the target nucleic acids;~~

~~contacting the sample with the detection unit under conditions effective to permit any target nucleic acid present in the taggant sample to bind to the capture probes, thereby connecting the capture probes; and~~

providing a detection unit comprising a plurality of reactant chambers and at least one detection chamber,

said detection chamber having one or more sets of electrically separated electrical conductor pairs, each conductor having an attached capture probe such that a gap exists between the capture probes of a pair of electrically separated conductors, wherein the capture probes for each pair of separated electrical conductors are complementary to one of the target nucleic acids;

storing reactants in other chambers;

transferring the recovered taggant sample into said detection chamber;

transferring reactants from their respective chambers into the detection chamber to thereby contact the sample with the reactants and establish conditions effective to permit any target nucleic acid present in the taggant sample to bind to the capture probes, thereby connecting the capture probes; and

detecting any target nucleic acid present in the taggant sample by determining whether electricity is conducted between the electrically separated conductors, thereby identifying the tagged item.

2. (Original) The method according to claim 1, wherein the taggant sample further comprises random nucleic acid molecules mixed with the target nucleic acids.

3. (Original) The method according to claim 1, wherein the target nucleic acids

comprise 10 to 30 nucleotides.

4. (Original) The method according to claim 3, wherein the target nucleic acids are selected from the group consisting of DNA, RNA, peptide nucleic acids, and locked nucleic acids.

5. (Original) The method according to claim 1, wherein the capture probes comprise 10 to 30 nucleotides.

6. (Original) The method according to claim 5, wherein the capture probes are selected from the group consisting of DNA, RNA, peptide nucleic acids, and locked nucleic acids.

7. (Original) The method according to claim 1, wherein the taggant sample further comprises a matrix.

8. (Original) The method according to claim 7, wherein the matrix is selected from the group consisting of polyvinylalcohol, polyethyleneglycol, polyethyleneimine, polyvinylpyridine, hydroxyethylcellulose, polyvinylbutyral, polyvinylpyrrolidone, polyvinylimidazole, and a combination thereof.

9. (Original) The method according to claim 1 further comprising: contacting the capture probes with nucleases after said contacting.

10. (Original) The method according to claim 1 further comprising: contacting the capture probes with ligase after said contacting; and heating the capture probes to a temperature high enough to denature any non-ligated target nucleic acids from the capture probes.

11. (Original) The method according to claim 1 further comprising: applying a conductive material over the capture probes and any target nucleic acid after said contacting.

12. (Original) The method according to claim 11, wherein the conductive material is

selected from the group consisting of gold, silver, and mixtures thereof.

13. (Original) The method according to claim 1, wherein the taggant sample is stable under ambient conditions.

14. (Original) The method according to claim 1, wherein the taggant sample is applied to the item in a manner that allows removal of a sample for identification.

15. (Original) The method according to claim 14, wherein the taggant sample is ink.

16. (Original) The method according to claim 15, wherein the taggant sample is printed onto the item or a package containing the item.

17. (Original) The method according to claim 1, wherein the item to which the taggant sample is applied is selected from the group consisting of fabric, paper, cardboard, wood, plastic, nylon, nitrocellulose, rubber, resin, gel, liquid, and adhesive.

18. (Original) The method according to claim 17, wherein the item is fabric.

19. (Original) The method according to claim 18, wherein the item is an article of clothing.

20. (Original) The method according to claim 17, wherein the item is paper or plastic.

21. (Original) The method according to claim 19, wherein the paper or plastic is a label.

22. (Original) The method according to claim 21, wherein the label is a bar-code label.

23. (Original) The method according to claim 21, wherein the label is a tamper-proof label.

24. (Original) The method according to claim 17, wherein the item is cardboard.

25. (Original) The method according to claim 24, wherein the cardboard is a product's packaging.

26. (Original) The method according to claim 25, wherein the taggant is applied to the exterior surface of the packaging.

27. (Original) The method according to claim 24, wherein the taggant is incorporated into the product's packaging.

28. (Original) The method according to claim 1, wherein the item the taggant is applied to a medicament.

29. (Original) The method according to claim 28, wherein the medicament is selected from the group consisting of a capsule, a pill, a tablet, a lozenge, and an ointment.

30. (Original) The method according to claim 1, wherein the device has a plurality of pairs of separated electrical conductors, each pair having attached capture probes that are complementary to a different target nucleic acid.

31-37. Cancelled.

38. (New) The method of claim 1 wherein further comprising discharging the contents of the detection chamber into a waste chamber after the target nucleic acid present in the taggant sample is determined.

39. (New) The method of claim 1 wherein the time between the steps of pumping the reactants into the detection chamber the detecting of target nucleic acid present in the taggant sample is no more than sixty minutes.

40. (New) The method of claim 1 wherein the time between the steps of pumping the reactants into the detection chamber the detecting of target nucleic acid present in the taggant sample is between fifteen and thirty minutes.

41. (New) The method of claim 1 wherein the time between the steps of pumping the reactants into the detection chamber the detecting of target nucleic acid present in the taggant sample is about fifteen minutes.

42. (New) The method of claim 1 wherein the step of transferring the reactants to the detection chamber comprises pumping the reactants.

43. (New) The method of claim 1 further comprising the step of displaying the results of the step of identification.

44. (New) The method of claim 1 further comprising the step of programming the detection unit to transfer the reactants into the detection chamber.

45. (New) The method of claim 1 wherein the taggant sample potentially contains multiple target nucleic acids, the detection unit comprises an array of multiple sets of electrically separated conductor pairs including at least one set for each of the multiple target nucleic acids, and the step of detecting includes simultaneously detecting each of the target nucleic acids present in the taggant sample.